DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 13.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-010015
Date Inspected: 04-Nov-2009

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Oregon Iron Works Clackamas, Or.

OSM Arrival Time: 700
OSM Departure Time: 1530
Location: Clackamas, OR

CWI Name:	Mike Gregson			**CWI Present:**	☑ Yes	☐ No		
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☐ Yes	☐ No	☑ N/A	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A	
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A	
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A	
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A	

Bridge No: 34-0006
Component: Hinge K Pipe Beams

Summary of Items Observed:

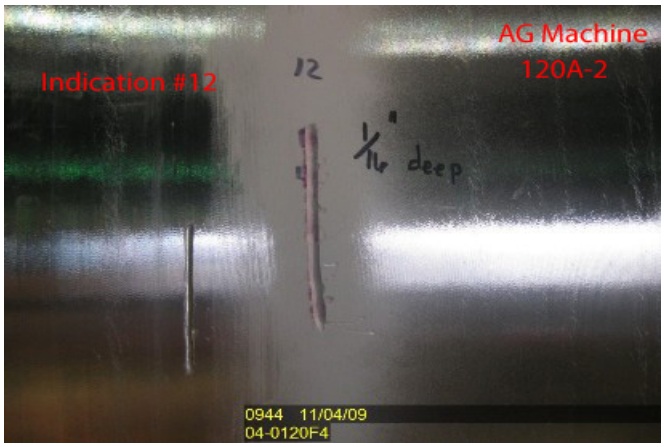
The Quality Assurance Inspector Sean Vance arrived on site at Oregon Iron Works, Inc (OIW) in Clackamas, OR, to randomly observe the in process welding of the Hinge K Pipe Beam assemblies. The QA Inspector arrived on site to randomly observe the OIW Quality Control (QC) Inspectors in process and completed visual and nondestructive testing. Upon the arrival of the QA Inspector the following observations were made:

AG Machining
Hinge-K Pipe Beam Fuse Assembly 120A-2: 11/4/09
a124-3 Half Fuse to a124-11 Half Fuse
QA Inspector arrived at AG Machine, on this date and noted that OIW welder #C34, Mr. Mark Craig and OIW QC Inspector, Mr. Jose Salazar, had previously arrived at AG at approximately 0630 and were in process of performing the weld repairs, on the previously noted indications, on this fuse assembly 120A-2. QA Inspector spoke with QC Inspector Jose Salazar and Mr. Salazar explained that a total of 23 indications, previously noted by AG during the second final machining cut pass, had been excavated out by Mr. Craig, utilizing a mechanical grinder. QA Inspector witnessed Mr. Salazar measuring the depths of the above mentioned excavations, utilizing a bridge cam gauge and noted that Mr. Salazar had recorded depths on the excavations of approximately 1/32” (. 8mm) - 1/16”+ (1.6mm+), lengths of approximately .5” (13mm) - 4” (100mm) and widths of approximately .25” (6mm). QA Inspector verified the above mention measurements and noted that these 23 excavations were on the a124-3 piece mark (half-fuse assembly). QA Inspector then witnessed Mr. Salazar performing 100% liquid penetrant testing on the 23 excavated areas and noted that some minor indications were found in the excavations by Mr. Salazar, approximately .5mm deep and these were then removed by Mr. Craig, utilizing a mechanical grinder. QA Inspector was then notified by Mr. Salazar that he had spoken with QC Manager, Tom Tomivick and

QA Inspector was informed, by Mr. Salazar, that QCM Tomovick explained to Mr. Salazar, that all excavation depths that exceeded 1/32" (.6mm), will be a weld repair and the excavations less that this depth, will be machined out, during final machining. QA Inspector noted that this would be a total of 8 excavations and that Mr. Craig was ready to begin welding on these excavations, utilizing welding procedure specification, (WPS 8022) and that the fuse assembly 120A-2 was currently rotated in the horizontal lathe, so the 1st indication repair, would be performed in the flat position, utilizing the gas tungsten arc welding process (GTAW), per the applicable WPS 8022. QA Inspector noted that prior to performing the GTAW, Mr. Craig had applied pre-heat to the weld repair area and surrounding heat affected zone/base metal and QC Inspector Jose Salazar had recorded a pre-heat temperature of 150 degrees Fahrenheit (65 Celsius), utilizing a digital thermometer. QA Inspector noted that Mr. Craig had then started the GTAW and QA Inspector witnessed Mr. Salazar performing in-process welding parameters and recording amperage of 121 amps and voltage of 15.1 volts. QA Inspector verified that these in-process welding parameters, were in compliance with WPS 8022. QA Inspector noted that Mr. Craig had soon completed the GTAW repair on the first excavation and had started the GTAW on the next 7 excavations, measuring depths greater than 1/32" (.6mm). QA Inspector noted that the excavations, prior to welding, were rotated to the flat position, in the horizontal lathe and QA Inspector witnessed QC Inspector Jose Salazar performing temperature checks on the areas and surrounding base metal and noted that the pre-heat was approximately 160 degrees Fahrenheit (71 Celsius). QA Inspector witnessed Jose Salazar performing and recording in-process welding parameters averages of 125 amps and 15.2 volts, which is in accordance to the applicable WPS 8022. QA Inspector noted that Mr. Craig had completed the weld repairs at approximately 1100 and QC Inspector Jose Salazar explained that once the repair areas cool to ambient temperature, 100% informational penetrant testing will then be performed, on the repairs. QA Inspector later witnessed Mr. Salazar performing the penetrant testing and noted that no rejectable indications were found, per AWS D1.5. QA Inspector noted that the above mentioned weld repairs that were performed by OIW personell at AG Machine shop, appeared to be in compliance with the applicable WPS 8020 and contract requirements. See attached pictures below.

Note: QA Inspector noted that the above mentioned indications appeared to be small, circular slag inclusions that were deposited during the electroslag overlay welding process performed by OIW.

QA Inspector later spoke with AG machinist and AG explained that the 2nd cut pass was complete and any additional visual indications will be noted after finished and AG will then inform OIW personell and OIW will perform the required weld repairs at AG. QA Inspector was previously informed by AG that a third cut pass would be needed, set to a depth of approximately 1mm, utilizing a cutting bit and the final finish profile of .8µm will then be achieved, utilizing a "superfinisher" (a block of honing stones, for finishing).



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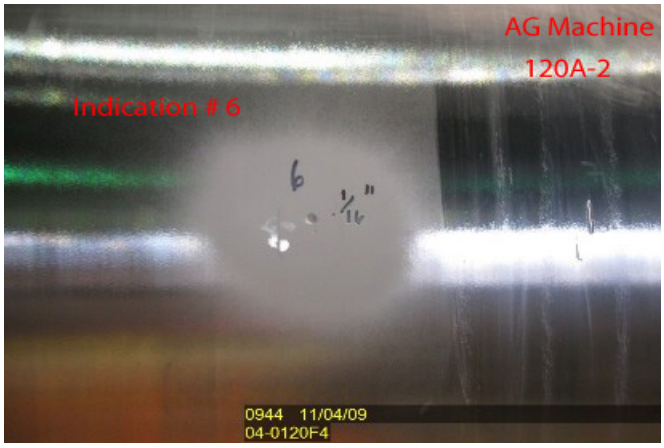

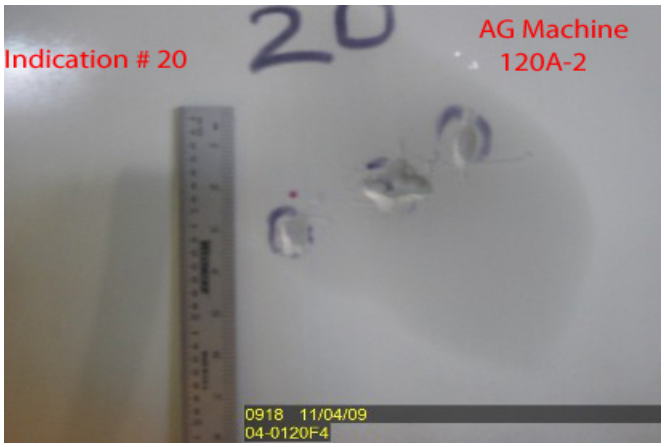

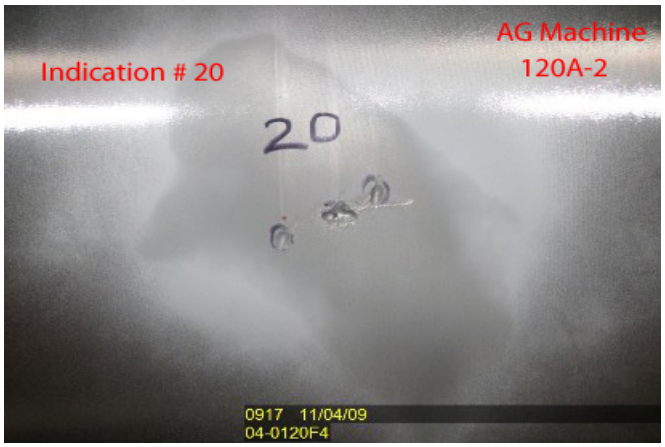

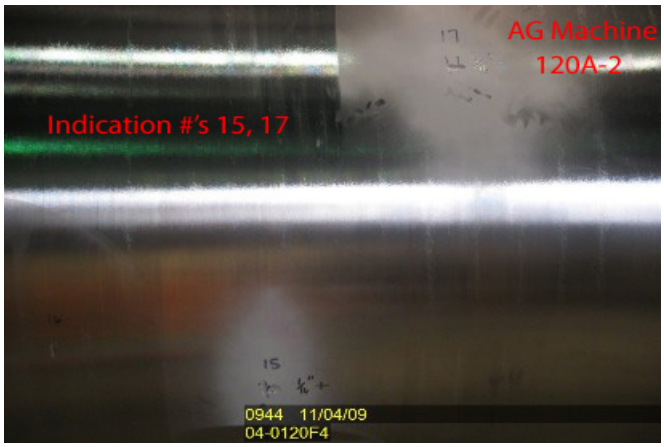

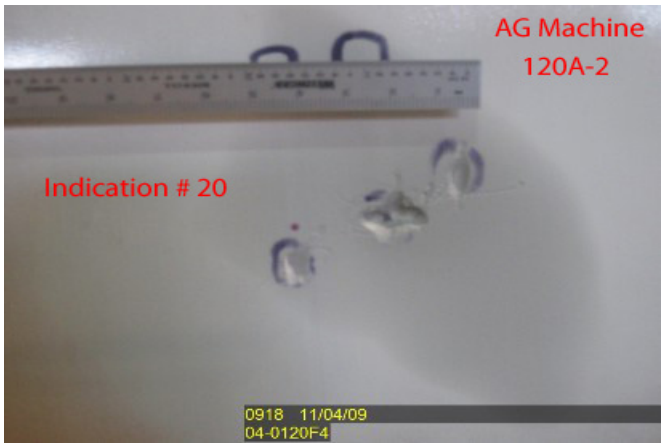

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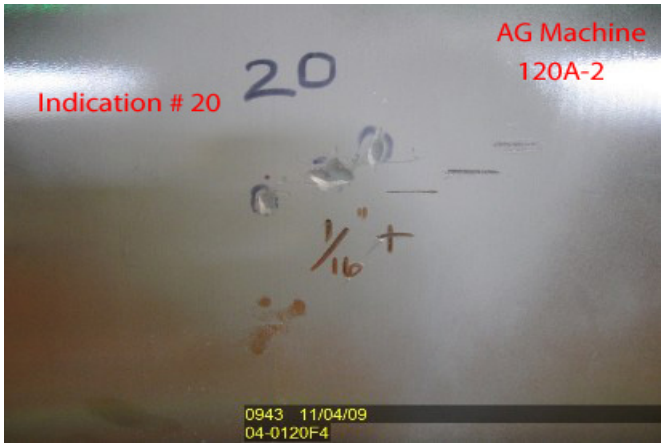

Summary of Conversations:

As noted above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

Inspected By:	Vance,Sean	Quality Assurance Inspector
Reviewed By:	Adame,Joe	QA Reviewer